Environmental Water Account
Asset Recommendations

H-001337

April 7, 2000

DRAFT ENVIRONMENTAL WATER ACCOUNT ASSET RECOMMENDATIONS

The following recommendations allow the creation of an Environmental Water Account starting October 1, 2000. The EWA will acquire assets of about 300 thousand acre-feet of water during the period October 1, 2000 – September 30, 2001. The recommendations also include provisions for acquiring additional assets that will allow the account to be used for the long-term (5 + years). The recommendations also involve policy issues that require resolution.

1. **Pursue Option No. 2 With Flexibility to Purchase as Much South of Delta Water and Storage As Capable**
   - ✓ This option includes the purchase of water south and north of the Delta, purchase of storage space for the water, and SWP/CVP project operational flexibility.
   - ✓ It provides the flexibility for carryover water and storage to be acquired for use in subsequent years.
   - ✓ It provides a moderate to high degree of reliability at a reasonable cost.
   - ✓ It involves some policy issues that require resolution.

2. **Allocate $50 million dollars from portions of the State and Federal budgets for implementation of Option No. 2**
   - ✓ A portion of this request ($20 million) will be used as a reserve for contingencies and long-term options.
   - ✓ This funding helps to assure long-term formation and success of an EWA.

3. **Pursue a long-term groundwater storage agreement with the Vidler Water Company, and water purchases with the San Joaquin River Group.**
   - ✓ This provides for immediate and long-term use of the EWA.

4. **Pursue multi-year surface storage agreement with Metropolitan Water District**
   - ✓ This provides for immediate and long-term use of the EWA.

5. **Fully use Joint Point of Diversion to the extent currently allowed to benefit water users and the EWA**
   - ✓ This provides water supply benefits to water users and the EWA.

6. **Explore recapture of (b)2 released water to benefit water users and the EWA.**
   - ✓ This provides water supply benefits to water users and the EWA.

DRAFT - Environmental Water Account Tools Matrix (Short and Long -Term)

Draft - April 7, 2000

EWA Component	Asset	Benefits	Cost	Issues	Linkage	Technical Feasibility/Status
A. Water Acquisitions (Fixed Assets)	1. Water Purchase North-of-Delta	30 - 50 TAF	$50 - $70 / AF	Environmental Documentation, Potential conflicts with CVPIA acquisitions, WQCP	Need storage and export conveyance.	**Good** - Assign responsibility for purchase; acquire funds, prepare E.A.
	2. Water Purchase South-of-Delta	90 - 200 TAF	$130 - $250 / AF	Same as A.1; Use Federal purchase/option in Year 2000 for EWA	Need storage.	**High** - Assign responsibility for purchase; acquire funds, prepare E.A.
	3. Demand Shifting	50 - 100 TAF	$25 - 100 / AF	Lead time to coordinate shift; payback requirements; Environmental Documentation	Address San Luis low-point	**High** - Assign responsibility for purchase; acquire funds, prepare E.A.
B. Operational Flexibility (Variable Assests)	1. Export / Inflow Ratio Relaxation	0 - 50 TAF	$15 - $35 / AF	Policy decision; South Delta water levels;fish impacts; water quality; water recovery	South of delta storage and conveyance capacity; purchase of water	**Good** -- Find storage; obtain regulatory approval; SWRCE notification
	2. Additional 500 cfs	0 - 90 TAF	$25 - $35 / AF	Same as B.1	Same as B.1	**Good** - Implementation being pursued by interagency team
	3. Recapturing B2 Water	50 - 200 TAF	$25 - 35 / AF	Loss of abandoned water for SWP use; COA negotiations; Policy decision	South of delta storage and conveyance capacity; CVPIA and ERP water acquisitions	**Good** - Start/complete negotiations between DOI and DWR; Potential impacts being assessed by SWP and CVI operators
	4. Sharing SWRCB Obligation Water	SWRCB estimates little benefit	N/A	Loss of SWP water source; real water may not be generated; Dependent upon SWRCB decision	South of Delta storage and conveyance capacity	**Low** - SWRCB decision schedule, Requires COA negotiation & revision
C. Conveyance	1. Access to Conveyance (JPOD)	0 - 125 TAF	$25 - 35 / AF	Priority for EWA use; storage space; CVP contractor impact; Policy decision	Coordination with ERP and CVPIA water	**Good** - Investigate constraints; Initiate agreements between CALFED agencies
	SWP/CVP 400 cfs Intertie	up to 120 TAF	$10 m Cap. / $1.5 m O&M	COA renegotiation; S. Delta water levels; Decreased yield in dry periods; Policy decision	South of Delta storage needed	**Good** - 2 years for planning; 1 year for construction
D. Storage	1. San Luis	100 TAF	$20 - 25 / AF	Loss of storage space for contractor use; COA negotiations; Policy decision	400 cfs intertie; upstream purchases; conveyance	**Good** - Investigate constraints; conduct negotiations
	2. Lease/Purchase Surface Storage (MWD)	0 - 100 TAF	$35 - 90 / AF	Need to acquire water rights for storage?	Same as D.1	**Good** - Initiate negotiations and acquire contracts
	3. Groundwater Storage	75 - 150 TAF	$100 - 200 / AF	Availability of water; local ordinances on exportation	Conveyance capacity at SWP and CVP	**Good** - Initiate negotiations; acquire water supply
E. Other	1. Water Conservation for EWA	0 - 50 TAF	$1,000 / AF	Funding for water efficiency programs	Access to storage needed	**Fair** - Determination of "real' water saved may be difficult. Efficiency savings will take a number of years to accumulate
	2. Surcharges on Project Exports	TBD - Dependent on surcharge rate	TBD - Cost would be incurred by SWP/CVP water users	Controversial -- "Taking" of contractual water; Implementation may require major changes in State law and policy	Access to storage needed	**Good** - Due to controversial issues, implementation may take several years

DRAFT - Environmental Water Account Short-Term Option Matrix
October 2000 - September 2001

Draft - April 7, 2000

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EWA Option 1	Asset	Benefits	Cost	Issues	Status
Attributes: High reliability; High expense; Storage to be purchased with water; Minimal conveyance needed; Policy decision needed	1. South of Delta Water Purchase Including Option for Storage (Available in all water year types)	200 TAF	$150 / AF	Use of Federal purchase/option Year 2000 agreement for EWA; Environmental Documentation, Potential conlfict with CVPIA acquisitions	Contract for Federal purchase of up to 75 TAFcompleted (decision required regarding use of water). Informal contacts made with KCWD, MWD, Semi-Tropic and Vidler Water Co. for purchase of storage and additional water.
	2. Demand Shifting (Available primarily in wet years)	40 TAF	$50 / AF	Lead time to coordinate shift; Payback of water	Informal contacts made with KCWD, MWD, and Semitropic.
	3. Storage Purchase (Available in all but the wettest and driest year types)	(100 TAF)	$200 / AF	Participation in Semitropic long-term banking program	Informal contact made with Semitropic, and Vidler Water Company.
	4. Additional 500 cfs (Available primarily in wet years)	60 TAF	$30 / AF	Policy decision required	Implementation being pursued by interagency team, Potential for use in WY 2001-2002 being assesed by SWP and CVP Operators.
Total		**300 TAF**	**$54 Million**		

EWA Option 2	Asset	Benefits	Cost	Issues	Status
Attributes: Moderate Reliability; Less Expensive; Less water purchased;	1. South of Delta Water and Storage Purchase	75 TAF (40 TAF)	$150 / AF $200 / AF	Same as those in Option 1	Same as option 1
Greater reliance on operational flexibility; Policy decisions needed.	2. North of Delta Water Purchase (Available in all water year types)	40 TAF	$70 / AF	Same as those in 1a. Access to conveyance also needed	Draft EA for VAMP use available; Contact made with SJRGA and Yuba County Water Agency. Availability still needs to be determined
Upstream water purchased for less cost but conveyance needed	3. Demand Shifting	90 TAF	$50 / AF	Same as Option 1	Same as Option 1
	4. Additional 500 cfs	60 TAF	$30 / AF	Same as Option 1	Same as Option 1
	5. Export/Inflow Ratio Relaxation (Available primarily in drier years)	35 TAF	$25 / AF	South Delta water levels; fish impacts; water quality; storage, need for State agreement; Policy decision required	Potential for use being assessed by SWP and CVP operators
Total		**300 TAF**	**$30 Million**		

EWA Option 3	Asset	Benefits	Cost	Issues	Status
Attributes: Least Reliable Option; Most Inexpensive; Depends entirely on operational flexibility;	1. Recapture b(2) (and ERP Water)	105 TAF	$30 / AF	Loss of abandoned water for SWP use; COA renegotiations required; Policy decision required	Potential for use being assessed by SWP and CVP operators
Both conveyance and storage needed; Policy decisions needed.	2. Additional 500 cfs	60 TAF	$30 / AF	Same as Option 1	Potential for use being assesed by SWP and CVP Operators.
	3. San Luis Storage	100 TAF	$25 / AF	Policy decision needed; COA renegotiation	Potential for use being assessed by SWP and CVP operators
	4. Export/Inflow Ratio	35 TAF	$25 / AF	Same as Option 2	Same as Option 2
Total		**300 TAF**	**$9 Million**		

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EWA Option 1 Total Account: 300 TAF $54 Million

Option 1 consists of highly reliable measures such as south-of-delta water purchases, including storage, and is the most expensive option. Storage is needed to preserve the availability of purchased water beyond the season for future EWA purposes if it is not used in the current season. The measures in this option will not result in any additional water supply. This option makes SWP operational flexibility asset available to the EWA.

- **EWA Water Purchases**

  South of Delta water purchases from willing sellers can be used to mitigate impacts to water supply for actions taken to enhance fishery protection during sensitive periods. Water purchased south of the Delta provides more reliability since it is not dependant on export conveyance capacity or potential constraints on Delta exports. However, it may be dependant on conveyance capacity between the source of the water and the point of delivery or extraction capability for groundwater.

Kern Water Bank Authority	180 TAF	$150 / AF
Vidler Water Company (Water)	20 TAF	$150 / AF
Total Purchase Water (Water Only)	**200 TAF**	**$30 Million**

- **EWA Demand Shifting**

  Demand-shifting or rescheduling of water deliveries can enhance the real-time management of the system resulting in substantially less conflict between water-user needs and the environment. This measure has a higher degree of reliability for wet type years when agencies have more flexibility. Demand shifting is generally associated with one year purposes, whereas, water purchases may serve multiple year purposes.

Santa Clara Valley Water District	0 AF	$0
Metropolitan Water District	40 TAF	$50 / AF
Total Demand Shifting Water	**40 TAF**	**$2 Million**

- **EWA Storage Purchases**

  Storage south of the Delta will also be purchased to provide the opportunity to conserve purchased water for subsequent use by the EWA if it is not used in the current season. This provides an opportunity to capture Delta flows for the EWA and store south for subsequent use by the EWA to protect fishery resources through exchange of this storage for reduced exports. This quantity does not apply toward the EWA target.

Metropolitan Water District	0 TAF	$0
Semitropic	50 TAF	$200 / AF
Vidler Water Company	50 TAF	$200 / AF
Total Storage Capacity	**100 TAF**	**$20 Million**

- **Additional 500 cfs**

  Increasing the diversion rate into Clifton Court Forebay provides an opportunity to increase the operational flexibility and protection of fishery resources. The additional 500 cfs will be dedicated for EWA purposes and can be used in conjunction with purchased south-of-delta storage to increase the opportunity to shift SWP diversions to enhance protection of fishery resources. The potential source of water during the summer could be conserved upstream storage during export curtailments, unallocated surplus flows, or EWA purchased water north of the Delta. If this conveyance capacity were used to capture upstream EWA purchases, then accounting of the total assets for the EWA would need to be adjusted. The potential increased diversion in July and early August also provides an opportunity to address low-point concerns at San Luis Reservoir. There may be opportunities to extend the period during which the additional 500 cfs is allowed or periods under which more than 500 cfs is allowed. Increasing the existing diversion capacity would be allowed only when increased pumping would not harm fisheries, the Delta ecosystem, or water quality.

July, August, September	60 TAF	$30 /AF
Total 500 cfs Water	**60 TAF**	**$1.8 Million**

EWA Option 2 Total Account: 300 TAF $29.2 Million

Option 2 consists of a mixture of reliable measures such as south-of-delta water purchases, including storage, and less reliable measures such as export inflow ratio relaxation. Therefore, this option is less reliable than Option 1, but is less expensive. Storage is needed to preserve the availability of purchased water beyond the season for future EWA purposes if it is not used in the current season. The measures in this option will not result in any additional water supply. This option makes SWP flexibility assets available to the EWA. In addition, access to conveyance would be provided to the EWA for transfer of north of Delta water purchases at an equal priority basis as SWP interruptible water.

- **EWA Water Purchases**

  North of Delta water purchases from willing sellers can enhance protection to fisheries through improvement of in-stream flows. This water is less expensive than south of Delta purchases, but is less reliable since it is dependant on export conveyance capacity or potential constraints on Delta exports. Actions providing access to conveyance for the EWA are included to below to provide a higher degree of reliability of this measure. South of Delta water purchases from willing sellers can be used to mitigate impacts to water supply for actions taken to enhance fishery protection during sensitive periods. Water purchased south of the Delta provides more reliability since it is not dependant on export conveyance capacity or potential constraints on Delta exports. However, it may be dependant on conveyance capacity between the source of the water and the point of delivery or extraction capability for groundwater.

Yuba County Water Agency	30 TAF	$70 / AF
Oakdale Water District	10 TAF	$70 / AF
Kern Water Bank Authority	55 TAF	$150 / AF
Vidler Water Company (Water)	20 TAF	$150 / AF
Total Water Purchase (Water Only)	**115 TAF**	**$14 Million**

- **EWA Demand Shifting**

  Demand-shifting or rescheduling of water deliveries can enhance the real-time management of the system resulting in substantially less conflict between water-user needs and the environment. This measure has a higher degree of reliability for wet type years when agencies have more flexibility. Demand shifting is generally associated with one year purposes, whereas, water purchases may serve multiple year purposes.

Santa Clara Valley Water District	0 AF	$0
Metropolitan Water District	90 TAF	$50 / AF
Total Demand Shifting	**90 TAF**	**$4.5 Million**

- **EWA Storage Purchases**

  Storage south of the Delta will also be purchased to provide the opportunity to conserve purchased water for subsequent use by the EWA if it is not used in the current season. This provides an opportunity to capture Delta flows for the EWA and store south for

subsequent use by the EWA to protect fishery resources through exchange of this storage for reduced exports. This quantity does not apply to the EWA target.

Metropolitan Water District	0 TAF	$0
Semitropic	0 TAF	$0
Vidler Water Company	40 TAF	$200 / AF
Total Storage Capacity	**40 TAF**	**$8 Million**

- **Additional 500 cfs**

  Increasing the diversion rate into Clifton Court Forebay provides an opportunity to increase the operational flexibility and protection of fishery resources. The additional 500 cfs will be dedicated for EWA purposes and can be used in conjunction with purchased south-of-delta storage to increase the opportunity to shift SWP diversions to enhance protection of fishery resources. The potential source of water during the summer could be conserved upstream storage during export curtailments, unallocated surplus flows, or EWA purchased water north of the Delta. If this conveyance capacity were used to capture upstream EWA purchases, then accounting of the total assets for the EWA would need to be adjusted. The potential increased diversion in July and early August also provides an opportunity to address low-point concerns at San Luis Reservoir. There may be opportunities to extend the period during which the additional 500 cfs is allowed or periods under which more than 500 cfs is allowed. Increasing the existing diversion capacity would be allowed only when increased pumping would not harm fisheries, the Delta ecosystem, or water quality.

July, August, September	60 TAF	$30 / AF
Total 500 cfs Water	**60 TAF**	**$1.8 Million**

- **Export/Inflow Ratio Relaxation**

  Modifying the export/inflow ratio as described in the Water Quality Control Plan provides an opportunity to increase operational flexibility and protect fishery resources. The increased capacity associated with relaxing the E/I ratio will be dedicated for EWA purposes and can be used in conjunction with south-of-delta storage to capture upstream environmental releases (ERP, b(2), and EWA). This captured water stored south of the Delta could then be used to reduce Delta diversions to enhance fishery protection. The relaxation of the E/I could also be used to increase exports in exchange for a subsequent reduction at a later date during sensitive periods for fisheries to increase fishery protection. Alternatively, the relaxation could also be used to offset previous reductions taken in the spring or late fall during more sensitive periods for fisheries. The potential source of water during the E/I relaxation could be conserved upstream storage during export curtailments, unregulated flows, or EWA purchased water. If this conveyance capacity were used to capture upstream EWA purchases, then accounting of the total assets for the EWA would need to be adjusted. Increasing the export/inflow ratio would be allowed only when increased pumping would not harm fisheries, the Delta ecosystem, or water quality.

E/I Relaxation Winter/Summer 2001	35 TAF	$25 / AF
Total Export / Inflow Water	**35 TAF**	**$0.9 Million**

EWA Option 3 Total Account: 300 TAF $8.4 Million

This option consists of measures requiring some level of policy decision. This option is a mixture of moderately reliable measures such as recapturing b(2) and Ecosystem Restoration Program flows and less reliable measures such as relaxation of the export / inflow ratio. The measures in this option will not result in any additional water supply. This option dedicates 100 TAF of unused CVP share of San Luis storage to effectively use availability of the upstream b(2) and ERP flows for future EWA purposes. This option also makes SWP flexibility assets such as the additional 500 cfs available to the EWA. In addition, access to conveyance would be provided to the EWA for transfer of north of Delta water purchases at an equal priority basis as SWP interruptible water.

- **Recapturing b(2) and Ecosystem Restoration Program Water**

  Upstream b(2) or Ecosystem Restoration Program releases might be captured, either upstream (via exchange) or in the export area (by direct pumping) and credited to the EWA account. The recaptured flows can be dedicated for EWA purposes and be used in conjunction with south-of-delta storage to proactively shift SWP diversions to enhance protection of fishery resources.

Recapturing b(2)/ERP Water:	100 TAF	$30 / AF
Total Recaptured Water	**100 TAF**	**$3.2 Million**

- **San Luis Storage**

  Storage south of the Delta for the Environmental Water Account improves the effectiveness of the EWA for enhancing protection to fisheries. Dedicating 100 TAF of unused CVP share of San Luis storage for environmental Water Account purposes increases the flexibility for protecting fishery resources. It has been recognized that storage south-of-the Delta is necessary to store water captured in the Delta for later use in curtailing exports and minimizing impacts to water users. This arrangement would be for a limited amount of time (3-5 years) until long-term arrangements could be made with other south of Delta storage reservoirs or groundwater banks to dedicate storage to EWA assets.

CVP San Luis Storage:	100 TAF	$25 / AF
Total EWA Storage	**100 TAF**	**$2.5 Million**

- **Additional 500 cfs**

  Increasing the diversion rate into Clifton Court Forebay provides an opportunity to increase the operational flexibility and protection of fishery resources. The additional 500 cfs will be dedicated for EWA purposes and can be used in conjunction with purchased south-of-delta storage to increase the opportunity to shift SWP diversions to enhance protection of fishery resources. The potential source of water during the summer could be conserved upstream storage during export curtailments, unallocated surplus flows, or EWA purchased water north of the Delta. If this conveyance capacity were used to capture upstream EWA purchases, then accounting of the total assets for the EWA would need to be adjusted. The potential increased diversion in July and early

August also provides an opportunity to address low-point concerns at San Luis Reservoir. There may be opportunities to extend the period during which the additional 500 cfs is allowed or periods under which more than 500 cfs is allowed. Increasing the existing diversion capacity would be allowed only when increased pumping would not harm fisheries, the Delta ecosystem, or water quality.

July, August, September	60 TAF	$30 / AF
Total 500 cfs Water	**60 TAF**	**$1.8 Million**

- **Export/Inflow Ratio Relaxation**

  Modifying the export/inflow ratio as described in the Water Quality Control Plan provides an opportunity to increase operational flexibility and protect fishery resources. The increased capacity associated with relaxing the E/I ratio will be dedicated for EWA purposes and can be used in conjunction with south-of-delta storage to capture upstream environmental releases (ERP, b(2), and EWA). This captured water stored south of the Delta could then be used to reduce Delta diversions to enhance fishery protection. The relaxation of the E/I could also be used to increase exports in exchange for a subsequent reduction at a later date during sensitive periods for fisheries to increase fishery protection. Alternatively, the relaxation could also be used to offset previous reductions taken in the spring or late fall during more sensitive periods for fisheries. The potential source of water during the E/I relaxation could be conserved upstream storage during export curtailments, unregulated flows, or EWA purchased water. If this conveyance capacity were used to capture upstream EWA purchases, then accounting of the total assets for the EWA would need to be adjusted. Increasing the export/inflow ratio would be allowed only when increased pumping would not harm fisheries, the Delta ecosystem, or water quality.

E/I Relaxation Winter/Summer 2001	35 TAF	$25 / AF
Total Export / Inflow Water	**35 TAF**	**$0.9 Million**